A new species of *Melanagromyza* feeding on giant hogweed in the Caucasus (Diptera: Agromyzidae)

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A new species, *Melanagromyza heracleana* sp. n., is described from the Caucasus, with larva developing as stem-borer on *Heracleum mantegazzianum*.

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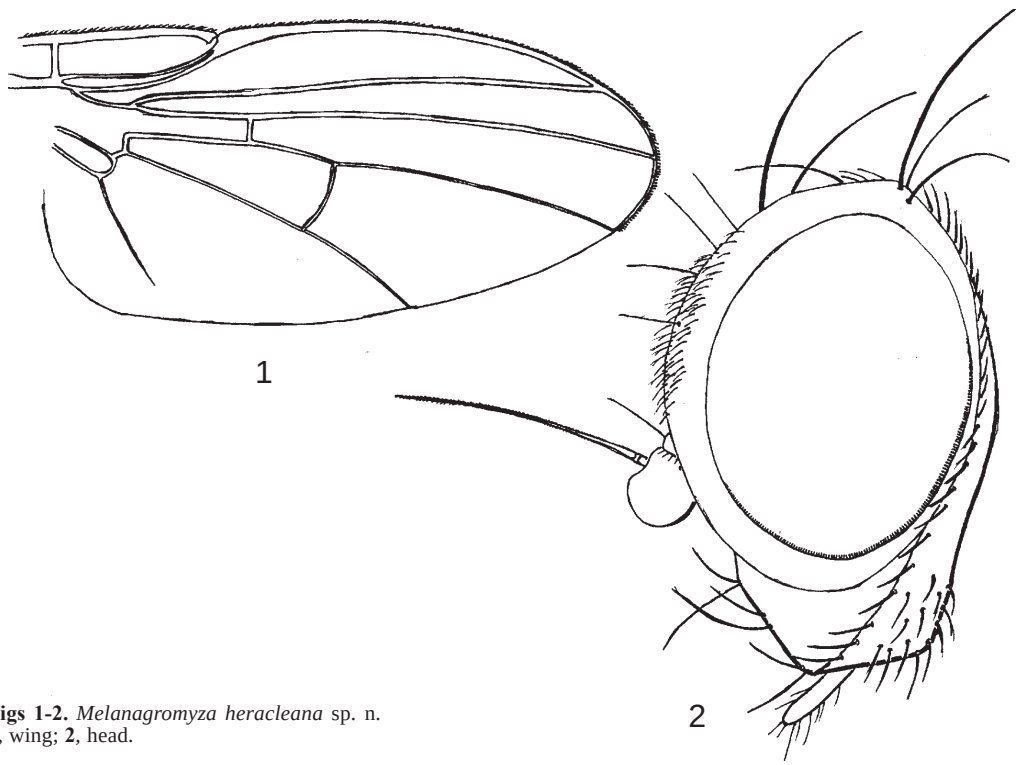
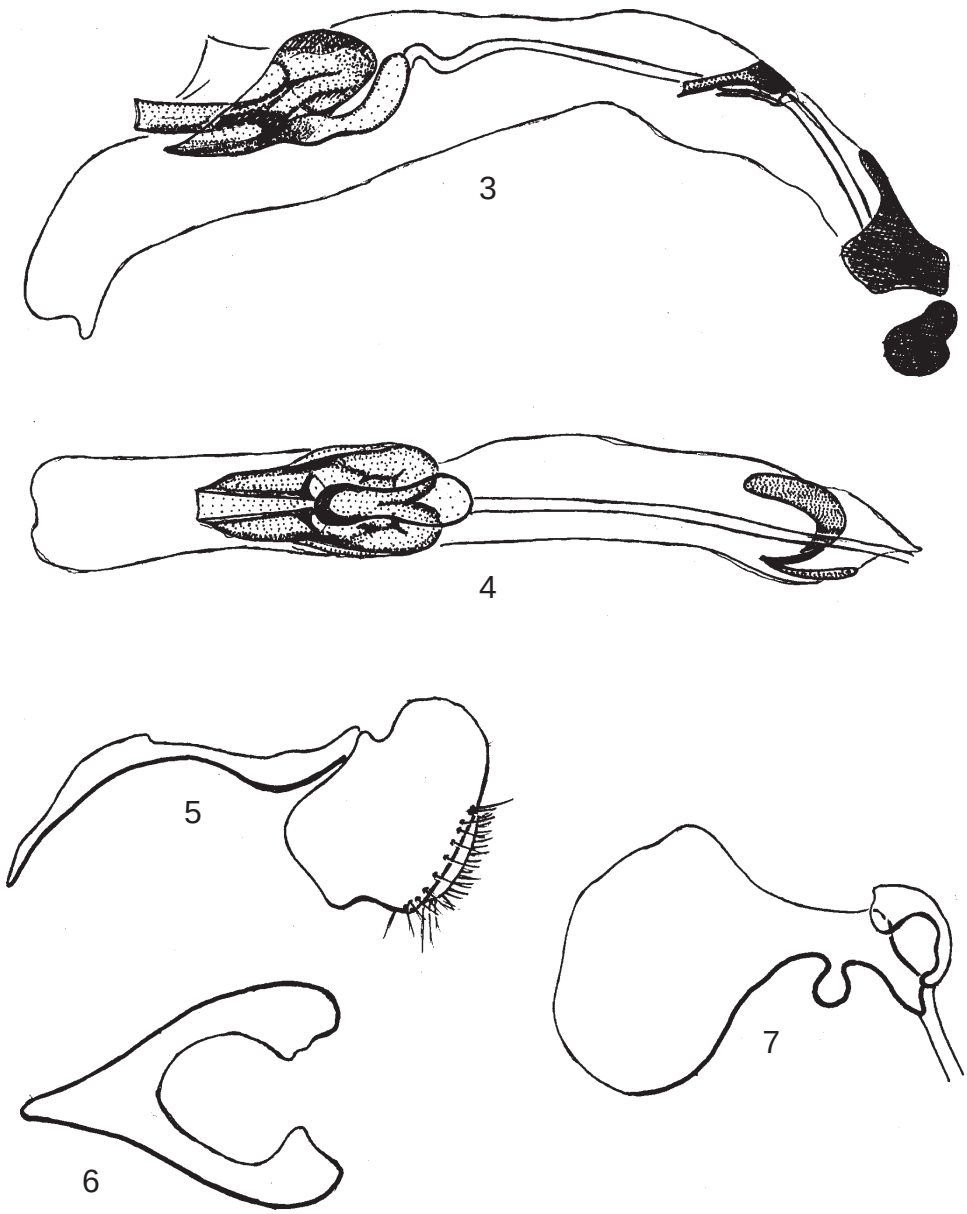
Recently, Dr. Hattendorf (Bern, Switzerland) has collected a series of an undescribed *Melanagromyza* species from the stem of giant hogweed (*Heracleum mantegazzianum* Sommier & Levier), which is widespread in Europe. The new species is described below. Abbreviations in this paper follow Spencer (1976).

Melanagromyza heracleana sp. n.
(Figs 1-13)

Holotype. ♂, **Russia**, *Krasnodar Terr.*, near Arkhyz, 1000-1700 m; pupa collected in old flower stem of *Heracleum mantegazzianum* in early June, 2004; imago emerged in mid-June, 2004 (leg. Jan Hattendorf); deposited in the collection of Zoological Institute, St.Petersburg.



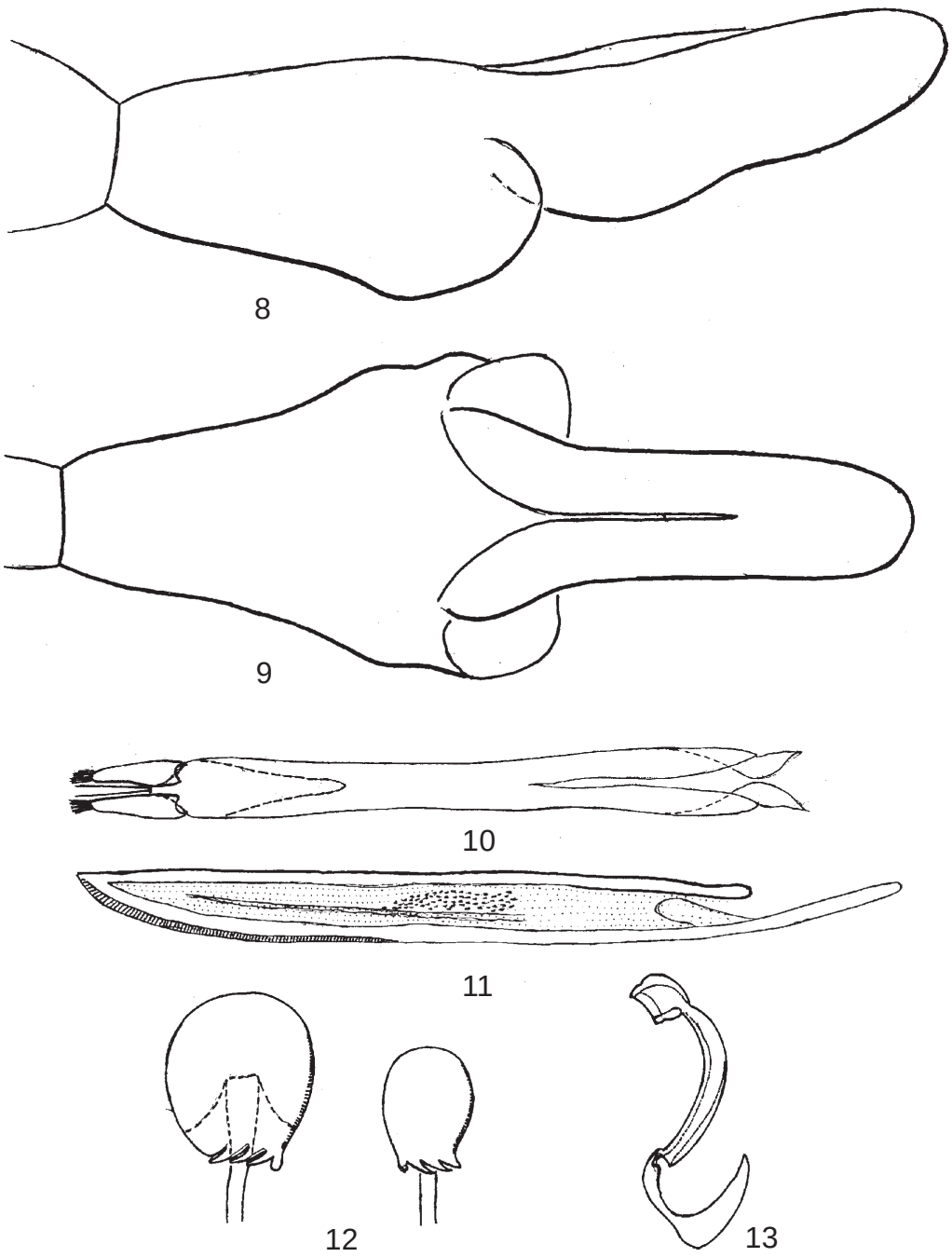
Figs 1-2. *Melanagromyza heracleana* sp. n.
1, wing; **2**, head.



Figs 3-7. *Melanagromyza heracleana* sp. n., male. **3-4,** aedeagus (3, lateral view; 4, ventral view); **5**, hypandrium and epandrium, lateral view; **6**, hypandrium, dorsal view; **7**, ejaculatory apodeme, lateral view.

Paratypes. 3 ♀, same data.

Description. Frons narrower than long, with sides parallel or slightly converging ventrally, twice as wide as eye, strongly projecting above eye in profile. Frontal triangle narrow, equilateral, with anterior apex reaching the level of third *ori*. Ocellar triangle bearing long oc and about 10-12 setulae. Orbits broad, each about one-fourth of frons width, with two strong subequal *ors*: upper seta directed dorsally and partly laterally, lower one slightly medially and reclinate. *Ori* mainly incurved, 4-6, their number on left and right sides usually different. Orbital setulae numerous, in several irregular rows, all proclinate. Frontal vitta slightly sunken, without setulae above lunule. Lunule large, more or less se-



Figs 8-13. *Melanagromyza heracleana* sp. n., female. **8-9**, 7th segment (8, side view; 9, dorsal view); **10**, 9th segment, dorsal view; **11**, egg guide, lateral view; **12**, spermathecae; **13**, receptaculum seminis.

micircular, broadly rounded dorsally, without median furrow. Antennal bases distinctly spaced, divided by flattened keel. Third antennal segment small, no longer than broad; upper margin slightly concave before base of arista, broadly rounded below, appearing bare. Arista normal, moderate-

ly long, 4/5 of eye height, microscopically pubescent. Face with deep antennal grooves and distinct facial keel tapering ventrally. Mouth margin broadly rounded. Epistoma lacking. Eye oval, vertical, bare in both sexes. Cheeks forming broad ring below eye. Jowls deepest posteriorly, about one-third of eye height. Peristomal margin straight, with 5-10 long setulae. *vi* well-developed; vibrissal angle indistinct. Palps short, normal, distinctly gradually widening distally, bearing several bristles apically. Proboscis short, normal.

Mesonotum with two strong postsutural *dc*; three other postsutural *dc* greatly reduced in size, 3rd *dc* about one-fourth the length of 2nd one; 5th pair of *dc* scarcely different from *acr. acr* irregularly arranged in about 10 rows, extending to anterior margin of scutellum, becoming sparser behind 2nd *dc. prsc* not differentiated. One strong ia, interalar setulae numerous. *ipa* short, about one-third of *opa* length. Scutellar bristles moderately long, of subequal size. Base of each *bsc* surounded by a patch of numerous setulae; sometimes each patch reaching median line of scutellum and thus, patches merged near anterior margin of scutellum. Humerus with one strong *h* and numerous setulae. Two *ntpl*. Mesopleura bearing numerous setulae in upper third. Sternopleura with 4-5 strong bristles and several curved setulae. Middle tibiae with two strong pd.

Wing with *C* extending to M_{1+2}. Wing apex situated between apices of veins R_{4+5} and M_{1+2}; apex of R_{4+5} closer to wing apex. *C* with three sections having following relative lengths: 1 : 0.25 : 0.25-0.26. *ta* situated just beyond midpoint of discal cell. Last section of M_{3+4} 0.56-0.7 times the length of penultimate section. Anal vein not reaching wing margin. Wing length from 3.0 mm in male to 3.6 mm in female.

Coloration. Body entirely black. Frontal triangle and orbits weakly shining. Mesonotum deep black, with weak greenish or bluish sheen; abdomen more matt. Ovipositor sheaths shining black. Wings hyaline, veins brown-black. Halters brown-black. Squamae greyish white, with margin and fringe black.

Male genitalia. Posteroventral margin of epandrium slightly concave. Surstyli densely covered with numerous short spines. Cerci normal, about as long as half of epandrium height. Hypandrium strongly curved vertically, V-shaped, with moderately broad sidepieces. Basiphallus asymmetrically U-shaped; conspicuously wide gap between basiphallus and distiphallus complex. Ejaculatory apodeme spatulate, with short ventral projection near base; pump bearing sclerotized plate.

Female terminalia. Ovipositor sheath about as long as 6th tergite. Apodeme elongate conical, about as long as ovipositor sheath, dorsally with low longitudinal ridge. Egg guides very long, 0.95 mm, with microscopic serration in distal third and numerous spinulae on dorsomesal membrane. Tergite 9 about 0.75 mm long, 3 times as long as sternite 9. Cerci long and narrow, bearing 4-5 setulae apically. Spermathecae differing in size from each other, 0.052 × 0.004 to 0.008 × 0.006 mm, partite proximally. Ventral receptacle with curved distal tail, constricted near end.

Diagnosis. The distinctive combination of morphological features of *M. heracleana* sp. n. is as follows: frons conspicuously projecting above eye in profile; orbital setulae numerous, in several rows, all proclinate; 4-6 *ori*; scutellum with a patch of setulae around base of *bsc*; squamal margin and fringe black; the gap between basiphallus and distiphallus complex unusually wide, about 3 times as long as basiphallus; egg guide very long.

Key to the Palaearctic species of *Melanagromyza* on *Heracleum*

1. Aedeagus with a conspicuous gap between basiphallus and distiphallus complex: distance between them 2-3 times the length of basiphallus. Segment 9 and egg guide very long, 0.9-1 mm. Squamal margin dark, from brown-black to deep black 2
– Aedeagus with basiphallus adjoining distiphallus complex: distance between them twice or less than twice the length of basiphallus. Segment 9 and egg guide moderately long, 0.5 mm. Squamal margin and fringe paler, whitish to brownish yellow 3
2. 2 *ori*. Orbital setulae in two rows, both proclinate and reclinate. Eyes in male conspiciously pilose . . . . . **M. nigrissima** Spencer
– 4-6 *ori*. Orbital setulae numerous, in several rows, all proclinate. Eyes in both sexes bare . . . . . **M. heracleana** sp. n.
3. Aedeagus with basiphallus closely adjoining distiphallus complex . . . . . **M. limata** Spencer
– Aedeagus with a gap between basiphallus and distiphallus complex: distance between them about twice the length of basiphallus . . . . . **M. angeliciphaga** Spencer

Host plant. Giant hogweed (*Heracleum mantegazzianum* Sommier & Levier) of the family Apiaceae is a very robust biennial to 5 meters high. It was introduced to European Russia from the Caucasus and southwestern Asia, where it is native. The species was originally introduced as a garden plant, but now it is naturalized in most of Europe and still spreading. *Melanagromyza heracleana* could be of significance in a biological control programme of this weed.

Biology. Pupae were collected in early June in old flower stems of *Heracleum mantegazzianum.* This fact implies that plants flowered during the previous season. Most *Melanagromyza* species are internal stem-borers; they oviposite to young stems in early summer. The larva pupates in late

summer or in autumn and remains in the centre of stem, with emergence taking place in the following year. Certainly, the new species has a similar feeding habit. Unfortunately, no larvae and pupae have been preserved.

Notes. Melanagromyza Hendel is one of the largest genera of the family Agromyzidae, including 357 species in the world fauna. This genus is predominantly tropical, progressively increasing in species number from the Magnoliidae to the Asteridae. It has also colonized some Orchidaceae, with six species known from Brazil to New Zealand. The number of species in *Melanagromyza* declines northwards in the Palaearctic and Nearctic regions. The primary feeding habit of *Melanagromyza* is internal stem boring; a few species also develop in flower heads, pods, roots, fruit rings or as gall-makers in stems. In most species, the host range is limited by one plant family (except two probably polyphagous or xenophagous species; see Spencer, 1990: 385).

Until now, 13 World *Melanagromyza* species were recorded as stem-borers on Apiaceae; eight of them occur in the Palaearctic Region. Only three species have been recorded as stem-borers on *Heracleum* (*M. angeliciphaga* Spencer, *M. limata* Spencer and *M. nigrissima* Spencer). Among them, the latter species feeds on *Heracleum sibiricum* L., and two other ones, on *H. sphondylium* L. (Spencer, 1990; Pakalniš kis, 1997). At present in the World fauna of the genus *Melanagromyza*, the host plants are known for each third species only. Therefore in the future an additional number of species can be described as Apiaceae feeders.

The new species is very interesting in having the groups of short setulae on the scutellum. This feature was first mentioned by Tschirnhaus (2000) for the genus *Hexomyza* Enderlein and considered by him as an autapomorphy of this genus. In this paper, Tschirnhaus transferred *Ophiomyia simplex* (Loew) having scutellar setulae, to *Hexomyza*. I do not share this point of view because I observed the same feature in some other females of the genus *Ophiomyia* Braschnikov collected in South America and kept in the Zoological Museum of Humboldt University (Berlin).

Acknowledgements

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